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FARMERS' BULLETIN 1099
UNITED STATES DEPARTMENT OF AGRICULTURE

HOME LAUNDERING



CLEAN CLOTHES are as necessary as clean food to health and comfort.

Much of the drudgery that has so long been considered a part of laundry work may be overcome by using good supplies, providing proper equipment, and following the best methods.

If the housewife will plan a room for her laundry with as much care as she does her kitchen, and then give the same amount of thought to putting in proper equipment and working out good methods, she will save much hard work.

Contribution from the States Relations Service

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Washington, D. C.

June, 1920

HOME LAUNDERING.

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WASHING AND IRONING are among the hardest of the regular household tasks, and ways of lessening the work are much needed in many homes. The ideal of every housekeeper would be a separate room for her laundry, with running water and modern labor-saving devices. These can not be provided in every home, but even where the arrangement and equipment are necessarily very simple it is often possible to make minor changes or to plan the work in such a way that it will take less time and strength. Probably not many households could adopt all the conveniences and methods described in this bulletin, but if the housekeeper follows the suggestions as far as her resources and circumstances permit, she may be able to make the weekly washing less burdensome.

THE LAUNDRY ROOM.

In olden days, tubs and wash benches were brought into the kitchen because water could be heated there most conveniently, and from this seems to have developed the idea that the kitchen is the place for the laundry. The odors and steam from laundry work, however, are disagreeable in a kitchen, and the handling of soiled clothing in any room in which food is prepared is highly objectionable. If clothes must be washed in the kitchen, the preliminary sorting should be done elsewhere.

In some sections, especially in the South, it is considered preferable to have the washing done out of doors or in a room outside of the house. Otherwise the best place for a laundry is usually either in a room next to the kitchen or in a basement room directly below it, because this makes it possible to use the same chimney and if the house is equipped with running water the same water pipes for both rooms. A basement laundry generally means too many stairs for the housewife, while a room adjoining the kitchen may enable her much more easily to carry on or oversee the work in both rooms at the same time.

Good lighting is necessary for good laundry work, and tubs and ironing board should be so placed that the light comes from the side. Direct sunlight is blinding. Putting glass in the door is often an inexpensive way of increasing the light. If clothes are to be hung outside, a door should open directly from the laundry to the yard. Doors and windows should be arranged to give the thorough ventilation especially necessary because of steam, odors, and heat.

A laundry floor should be of material that wears well, is not too hard for the feet, does not soak water or get slippery when wet, and is easily cleaned. Wood, cement, composition, and linoleum are used. Wood floors are not easily cleaned and are often slippery when wet. Georgia pine, a wood often used, is resinous, making it resist water and wear well. A maple or other hardwood floor wears better but is likely to be more expensive. Cement floors are common in some parts of the country and relatively inexpensive, and if painted with special cement paint they do not absorb water. Some composition floors are not too hard, are less expensive than hardwood, and are easily cleaned. The "composition" may be spread over an old wood floor. A floor covered with linoleum is easily wiped up, is impervious to moisture, and is easy to tread, but is slippery when wet. Such a floor will be more durable if the linoleum is cemented down and the seams are filled with waterproof cement.

The walls should be light in color and should be treated in such a way that they are not affected by steam. Oil paints are preferable to water color. If two coats of flat house paint and then two of enamel oil paint are used, the walls will be washable.

The room should be divided into a washing and an ironing section. The position of the stove will determine the details of this division. To make boiling the clothes convenient, the stove should be near the tub. If a washing machine is to be used, the tub should be so arranged that the garments go directly, without handling, from the machine through the wringer to the tub, and vice versa. If the arrangement is well planned, one washtub will be sufficient with a washing machine.

A closet or cupboard for holding supplies is almost a necessity. A good place for the closet is between the part of the room holding the washing outfit and the part reserved for ironing. The closet should preferably be high enough to hold the ironing board (unless it is permanently attached to the wall) and large enough to hold all the necessary equipment. One part of the closet may be shelved to hold the wringer, washboard, starching equipment, irons, soap, bluing, etc. Lists of such equipment and supplies are given on pages 14 and 29.

EQUIPMENT.

Good equipment is as important as right methods in laundry work. Both decrease the labor, shorten the time, and assist in producing better results. Equipment need not be expensive, but it should be chosen and placed from the point of view of service and for the comfort of the worker.

The working surface of nearly all laundry equipment is usually set too low, and the woman operating it is so out of balance that she is soon fatigued. Little of the washing process is done in the bottom of the tub, and the working height is about half-way up the side. For the average worker the top rim of the tub should be 36 inches from the floor; in all cases the tubs should be placed so that the worker does not stoop from the shoulders but bends at the hips. A portable washtub may be easily raised or lowered to the right height. If the top of the washboard is too high, it may be lowered by cutting off part of the legs. The ironing table or board should be low enough so that force from the shoulder can be easily applied; 31 inches is a good average height.

Where no special room is provided for the laundry and there are no set tubs, a portable bench of the correct height and size is convenient.

TUBS.

A wooden tub is difficult to keep in good condition. If kept dry it is likely to shrink and fall apart; if kept moist enough to prevent shrinking, it is likely to become water-soaked and slimy, and may have a disagreeable odor. A portable, galvanized-iron tub is fairly light, durable, and easy to keep clean, but may corrode. A fiber tub is still lighter, is easily kept clean, and is durable if left dry, but is more expensive than an iron tub. Any portable tub may have a hole bored in it and a plug inserted so that water may be drained from it without lifting the tub. Hot and cold water can be piped to a portable tub as well as to a more expensive stationary one.

For set tubs, wood, which is now little used, has the same qualities as for portable ones. Soapstone and similar materials are cheaper than porcelain, but because of their dark color it is more difficult to be sure that they are clean. Porcelain or enameled-iron tubs are heavily glazed and do not rust or absorb grease. Both white and yellow porcelain tubs are on the market; the latter are cheaper but the color may make it hard to tell when the clothes are white. A home laundry is most often equipped with two tubs, but when there is no washing machine a third tub saves much handling of the clothes.

WASHBOARD.

Washboards reduce the work of cleaning a garment but are somewhat hard on the clothes. A glass board, although more easily broken, is preferable to a metal one, because the corrugations are rounded and the friction on the clothes is less. When the surface of a washboard is broken it should not be used. Washboards should always be put away dry so that they do not warp or attract water-bugs.

WRINGER.

Wringers save labor, make the clothes much drier, and are less destructive to fabrics than hand wringing. To prevent buttons from being torn off by a wringer, fold them into the garment and hold it flat. A reversible wringer is much more useful than a one-way wringer if two or more tubs are used. To keep a wringer in good condition it should be oiled with good machine oil and the pressure screws should be loosened when it is not in use. When the pressure is put on again, both screws should be turned at once; then the pressure is more likely to be even. The rollers of a wringer may be cleaned with a cloth moistened with two or three drops of kerosene; but, since kerosene dissolves rubber, the rollers should be washed with soap and water as soon as the discoloration disappears.

CLOTHES BOILER.

A tin boiler costs less than any other, but is not particularly durable. It must be well dried after using. A tin boiler with a copper bottom is more durable, conveys heat better, and is worth the additional cost. A boiler made entirely of copper is expensive, but is the most durable of all. Some elaborate laundry equipments have stationary boilers, which save much lifting.

WASHING DEVICES.

Some helpful washing devices are on the market. One is a perforated funnel, made to place in a wash boiler, which works on the same principle as a coffee percolator, spraying the clothes and increasing the circulation of the water. The funnel-on-a-stick washer creates a partial vacuum and makes it possible to wash more clothes at a time and also to wash very soiled clothing without immersing the hands or scrubbing.

WASHING MACHINES.

Washing machines, whether operated by hand or by motor, are efficient because they do more work in a given time and do much of it without direct and constant supervision. While wooden-tub machines are cheaper than those with metal tubs, they are likely to

dry and then leak, if kept in a heated room; it is better to store them in a cellar, a barn, or a shed, or on a porch. Leaving a wet sponge in the machine helps to provide moisture. Metal tubs must be protected against rust, and the working parts of all machines must be kept properly oiled.

Types of washing machines.—While there are two hundred or more washing machines on the market, they may all be grouped under five heads:

(1) Machines of the "dolly" type (see fig. 1) have a device like a short-legged stool that revolves in a tub, usually of wood, and cleans the clothes by drawing them through the soapy water, first one way and then the other. In some cases there are corrugated boards around the side of the tub. There is special danger of tearing the clothes if too many are put in at one time.

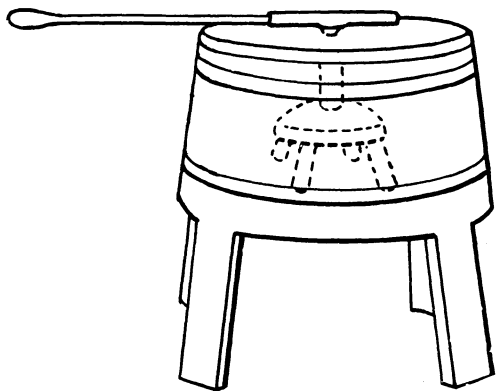


FIG. 1.—Dolly type of washing machine.

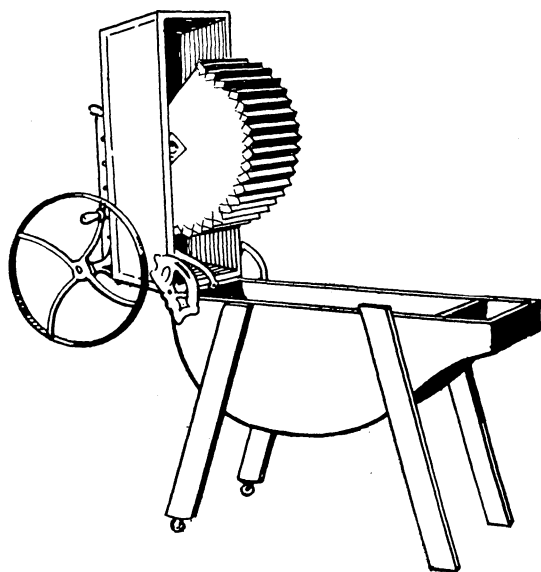


FIG. 2.—Washboard type of washing machine.

(2) The "wash-board" type of machine (see fig. 2), like the "dolly," usually has a wooden tub and rubs the clothes between corrugated boards.

Both these types of machines use friction and so are better suited for washing heavy, coarse clothing than for more delicate fabrics.

(3) The "cylinder" type of machine (see fig. 3) has a revolving perforated cylinder that holds the clothes and rolls barrel-fashion in an outer cylinder,

which holds the soap and water. The better makes of this type reverse the action, because a continual revolving of clothes in one direction twists them, thus preventing the water from being

so easily forced through them and increasing the work of removing the dirt.

(4) The oscillating type of machine throws the clothes forward and backward in an elongated box.

Both cylinder and oscillating machines are good for general home use, because in them the clothes are not pulled nor rubbed.

(5) The vacuum type of machine (see fig. 4) is equipped with cones or funnels that first press down on the clothes and then lift, producing suction. They are sometimes spoken of as the "pressure and suction type."

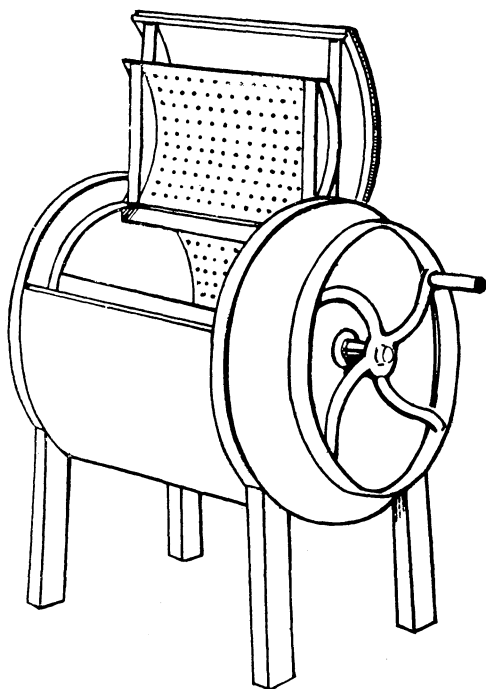


FIG. 3.—Rotary, or cylinder, type of washing machine.

Motors.—All these types of machine may be operated by hand or by water, gasoline, or electric motor. While a motor will increase the price of the washing machine, it will save much time and labor.

A water-motor washing machine may require a considerable flow of water. If a water flow of about 40 pounds pressure to the square inch is available, a water motor may be used; but may not be economical if the water is metered. There are some new machines that run on lower pressure.

A gasoline engine, such as is used to cut fodder, grind corn, or pump water may be used to run the washing machine. The belts by which the power is transmitted should be kept taut. Every person who runs a sewing machine knows how much power is wasted in treading when the belt is loose, and the principle is the same with the gasoline engine.

Electric machines may be purchased with motors using either a direct or an alternating current. Before the housekeeper orders her machine she must find out which kind of current is available, because even in different parts of the same city various kinds of electric current may be used.

Plugs are standardized; therefore if the connection is to be made through an electric-light plug, no special attachment will be needed.

In building a new house in which electric machines are to be used, it is wise to place plugs in the wall and not to depend upon the lighting system. Some localities give two service systems, one for lights and a cheaper one for operating electrical appliances.

In order to determine whether, from the money standpoint, it is cheaper to wash by hand or to buy and operate a washing machine, the cost of the two methods may be reckoned as follows: Divide the cost of the machine by the number of years it will probably be used. To the result add the cost of operation (about 5 cents an hour multiplied by the number of hours it will be used in a year, plus about \$1.50 per year for oil and minor repairs). To reckon the cost of hand work, calculate the amount paid a laundress during the year for actual washing (not starching and ironing) and add the yearly cost of any meals and car fare given her; or, if no laundress is hired, multiply the number of hours you give to this work yearly by the price which a laundress receives per hour in your neighborhood.

STARCHING OUTFIT.

The starching outfit consists of a pan or a pail, a tablespoon, a teaspoon, a measuring cup, and a strainer. All of these may be borrowed from the kitchen, but a duplicate set is inexpensive and time is saved by having it at hand.

CLOTHES BASKETS.

Baskets are used both for carrying wet clothes and for holding the soiled clothes that collect during the week. Those used for the latter purpose usually have a cover and are spoken of as hampers. Clothes baskets must be kept clean; therefore it is well to line them with some washable material, such as oilcloth or muslin, or with heavy paper that can be readily renewed. The clothes basket is usually of wicker, but hampers for holding soiled clothes are now also being made of papier mâché, which can be easily washed and dried. Bags made of material that may be washed and boiled with the clothes each week will answer the same purpose as the hamper. Infected clothing should never be put into the general hamper or the bag, but should be given special treatment (see p. 22). Damp clothing should be dried before it is put into a hamper or bag.

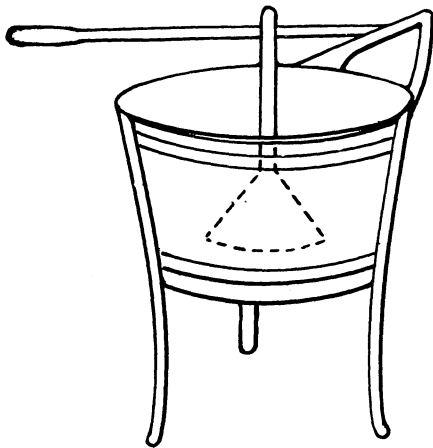


FIG. 4.—Pressure and suction type of washing machine.

CLOTHESLINES AND CLOTHESPINS.

The common clotheslines are hemp rope, galvanized wire, and cloth-covered wire. Rope lines are cheapest; but they should be taken down when not in use. The wire lines are durable, but with long use they are likely to corrode and stain the clothes.

The old-fashioned wooden clothespin is cheap and very serviceable for general use provided it is made of sound, smooth wood. The metal wire in spring clothespins is likely to corrode and may break.

CLOTHES DRIERS.

If she can get clean, fresh air and sunshine, every laundress prefers to dry her clothes out-of-doors. Unfortunately, in many city homes, and in bad weather anywhere, this is out of the question, and

some provision must be made for indoor drying. Clothes driers vary greatly in type. An excellent kind of drier for the small home is the one that is easily pulled up to the ceiling; it takes up so little room that it can be used in the kitchen if this is the only place available. For larger establishments spe-

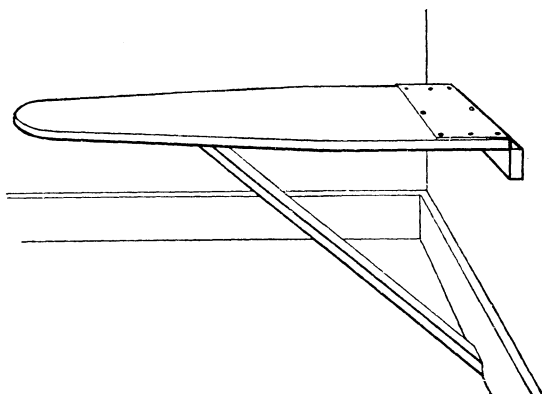


FIG. 5.—Folding ironing board.

cially heated space is sometimes provided; for example, a metal closet built in a small room adjoining the kitchen and heated by a radiator or an extension of the stovepipe. These inclosed driers must be ventilated to allow the steam to pass off; otherwise the clothes may be yellow.

In fitting up a special room as a laundry, even in a small house, it might be advisable to look into the question of the expense of installing a combination drier and stove. In such a drier the heated air passes through it from the stove just as the hot air in a cook-stove is forced around the oven. The top of the same stove may be used for the wash boiler and the irons.

CLOTHES SPRINKLERS.

Elaborate clothes sprinklers are on the market, and there are cheaper devices which give equally good service. An excellent one consists of a sprinkler attached to a cork that may be fitted into a medium-sized bottle. The fine sprayer that can be attached to a small hose is good, but costs more than the bottle sprayer. Whisk

brooms make good sprinklers, the round ones being perhaps more suitable for this work than the flat kinds. All these devices should give a finer spray, should sprinkle more evenly, and should do the work in less time than the hand method.

IRONING BOARDS.

An ironing board should stand firmly. A board with its broad end hinged to the wall is very convenient (fig. 5). Directions for making such a folding ironing board are given in another bulletin of this series,¹ which also tells how to make a rack to hold a portable ironing board (fig. 6) on the wall or the inside of a closet door.

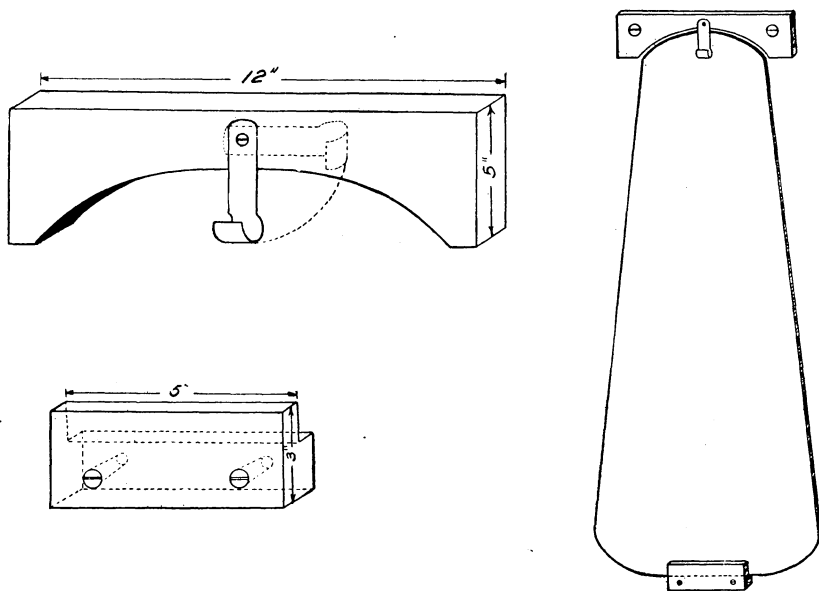


FIG. 6.—Rack for holding ironing board.

If the smaller end is square, the board is useful for ironing shirts and takes the place of the old-fashioned bosom board.

An ironing board should be padded so that it has spring, but not so that it is like a cushion; if padded too much, the iron will sink down and mark the garment that is being ironed. Heavy felt or the double-faced cotton flannel such as is used on a dining table, makes an especially good pad for an ironing board, but is expensive. The width of this material will cover the length of the board. The pad should be wide enough to turn over the sides, and about 2 inches should be allowed on all sides for shrinkage. Two thicknesses of the new material will be enough for a board, but after the pad has been washed or flattened by ironing three thicknesses

¹ U. S. Dept. Agr., Farmers' Bul. 927 (1918), Farm Home Conveniences, pp. 13, 14.

will give better results. Old blankets and mattress pads may be used, but by the time they are worn enough to be discarded for use on the bed they are usually too matted down to be of great service on the ironing board.

The cover on the ironing board may be made of old sheets, but is better made of new heavy unbleached sheeting 60 inches wide. This allows the width of the muslin to form the length of the cover. The cover should be hemmed and four pieces of tape firmly sewed to each side so that it can be easily put on and taken off. Ready-made covers laced together through eyelets are also convenient. There are various spring devices for holding the cover together, but some of them are likely to tear it.

A sheet of asbestos placed under the iron rest and the paper or cloth used for cleaning the iron, protects the muslin cover from scorching. Some boards have a piece of tin about 8 inches wide tacked across the end on which the iron is to stand.

IRON HOLDERS.

Iron holders should be thick enough to protect the hand, but not bulky. Ticking and asbestos are used in the ready-made holders, but folded stockings or newspapers covered with denim, gingham, or ticking make good holders. The alternate use of two holders will be found comfortable and convenient.

IRONS.

If old-fashioned flatirons are used, at least three should be provided. This allows a change of iron often enough to rest the hand and keep the irons hot. Those weighing from 6 to 8 pounds are easier to use than lighter ones, because a heavy iron makes it unnecessary to exert so much pressure. It is convenient to have one light-weight iron for thin goods and a sharp-pointed one for ruffles and gathers.

Flatirons with patent wood handles are convenient, but do not hold the heat so well as the old-fashioned iron. They are less likely to be steady and are not made in so many different shapes.

Electric, gas, gasoline, and alcohol irons save the worker from standing near a fire and from walking back and forth to change irons. They also make it possible for her to sit while ironing plain articles, and thus make the work easier. At first thought the price of these irons may seem prohibitive, but the convenience is so great that the initial cost and the cost of operating may be justifiable.

In buying an electric iron, choose one made by a recognized electrical supply company. This iron should be guaranteed for a year. The voltage of an electric iron is marked on the back of it and is,

in most cases, 110. The housekeeper must choose an iron that corresponds in voltage with the home current, because if more current is forced through than the wires are able to carry, it will be "burned out." The electric wires that lead from the iron should be watched; if any break appears in the covering it can easily be mended with adhesive tape while the current is off. These breaks should not remain uncared for, because of the danger of shock and fire.

Gas, gasoline, and alcohol irons burn fuel within the iron. Care must be used with the last two because if the container leaks, fire will result. With a gas iron the tubing connecting the gas is likely to knot and twist; therefore it is wise to choose the so-called flexible tubing, either the kind wound with wire, or, better still, that with a flexible metal core covered with several layers of protective material.

Rusty or dirty flat-irons should be scoured with sand soap or other rough material, washed and wiped dry, heated and waxed, and the surplus wax rubbed off on a clean cloth. If the iron is hot, it may be waxed and then rubbed on salt, sand, or emery paper. Electric and gas irons can also be cleaned in this way, but care should be taken to avoid wetting the insulated wires of an electric iron. New irons should be waxed before using. Irons not to be used for some time should be protected from rust by a coating of grease or paraffin or by wrapping them in waxed paper.



FIG. 7.—Cold mangle.

IRONING MACHINES.

A mangle or ironing machine is of great help; if one can not afford both that and a washing machine, one should get the latter first, because there are more clothes to wash than flat pieces to iron. Only sheets, pillowcases, table linen, and underwear without buttons or ruffles should be put through a mangle. A mangle should be chosen with reference to the size of the articles to be ironed. If it

is too small, folding articles many times makes progress slow, and the repeated ironing on the folds causes much wear. Mangles may be hand-driven or attached to a motor, and may be heated by gas, kerosene, gasoline, or electricity. A cold mangle, however, may give much service; it smooths only by pressure, giving no gloss nor glaze, and does not sterilize. (See fig. 7.)

CURTAIN STRETCHERS.

Curtain stretchers do not cost much and soon pay for themselves in saving the worker's time and wear and tear on the curtains. Also, most kinds of curtains hang better if stretched into shape rather than ironed. In buying curtain stretchers it is worth while to pay a little more for a good, rigid kind that can also be used for drying blankets. Blankets dried on a stretcher keep their shape.

The pins in a curtain stretcher may be movable so as to fit all the scallops in a curtain, but stationary pins are more satisfactory and substantial. Instead of having pins on the stretcher, many housewives wrap the frame with heavy ticking or tape and pin the curtains or blankets to these pieces. Some frames are tied together at the corners with strips of tape or muslin, but clamps cost very little and are much more convenient.

SUGGESTIVE LIST OF EQUIPMENT FOR A HOME LAUNDRY.

Washing:

- Boiler, copper bottom, 10 gallons.
- Soap dish.
- Washboard, glass or zinc.
- Washtubs.
- Wringer.

Drying and sprinkling:

- Clothesline.
- Clothespins.
- Clothes props.
- Curtain stretchers.
- Duster for line.
- Sprinkler.
- Whisk broom.

Starching:

- Pan or basin, enameled ware.
- Saucepan, enameled ware
- Strainer, tin.

Ironing:

- Asbestos mat (for protecting the ironing board).
- Bosom board.
- Clotheshorse.
- Felt or silence cloth for ironing board or table.
- Iron holders.
- Ironing board.
- Ironing table.
- Iron rests.

Ironing—Continued.

- Irons.
- Paper, for cleaning irons.
- Sleeve board.
- Wax for irons.

Miscellaneous:

- Bottles.
- Bowls, enamel, 2 to 6 quarts.
- Case knife.
- Cheesecloth.
- Cloth for cleaning tubs and boiler.
- Clothes basket or clothes hamper.
- Clothes stick.
- Dipper, block tin, short handle.
- Droppers.
- Enamel cloth for table.
- Flannel.
- Floor mop.
- Fruit jars.
- Measuring cup.
- Pail or bucket, galvanized iron, 10 quarts.
- Pins.
- Quart measure.
- Scrubbing brush.
- Spoons.
- Tape measure.
- Teakettle.

METHOD OF LAUNDERING.

While cotton, linen, wool, and silk are all laundered by washing and ironing, certain modifications of the process are made according to the nature of the fiber and whether it is colored or white. Washing displaces the dirt by forcing soap and water through the fabric. In doing this more or less friction may be used, the soap may or may not be rubbed directly on the fabric, and the process may be carried on with widely varying temperatures. Allowing clothes to get too soiled is more destructive to them than hard wear, because of the increased rubbing needed to clean them.

The family washing should be sorted into groups of white and colored clothing, with separate piles for wool, for silk, and for linen and cotton. Colored clothing, silks, and wools should be washed separately, for they can then be given special treatment. Torn places should be mended, and stains¹ should be removed before the garments are washed.

WHITE COTTONS AND LINENS.

Soaking.—Soaking clothes overnight or even for a shorter time loosens dirt, saves time, and lessens wear. Clothes may be soaked by covering them with cold or lukewarm water, or by wetting, soaping, rolling, and putting them into a small amount of water. The latter method takes more time but is more effective if there are no stains. Soaking for a short time in lukewarm water is as effective as longer soaking in cold water. Putting very dirty clothes to soak with cleaner ones may add greatly to the labor of washing the latter. Washing soda, ammonia, borax, or other chemicals are sometimes added to the water if the clothing is very dirty. This may be done simply to soften hard water (see p. 25) or as an extra help in loosening dirt when the water is already soft. In the latter case the chemicals are not likely to help unless soap is used with them.

It is safe practice to dissolve 1 pound of washing soda in a quart of water and mix 1 tablespoon of this solution in a gallon of soapy water. If the soda is mixed directly into the water used for soaking, there is danger that it may not be entirely dissolved and may eat holes in the clothes. The necessary amount of ammonia depends on its strength; about 3 tablespoons to the gallon is perhaps a safe allowance either for the dilute "household" ammonia bought at grocery stores or for the concentrated ammonia bought at the drug store and diluted at home to about eight times its original volume. From one to one and one-half teaspoons of borax to a gallon of water is the amount commonly suggested for soaking in soft, soapy water.

¹ U. S. Dept. Agr., Farmers' Bul. 861 (1917), Removal of Stains from Clothing and Other Textiles. U. S. Thrift Leaflet No. 6 (1919), How to Remove Stains.

If the water is hard, soaking of any kind is unsatisfactory because of the scum that settles on the clothes. Soap will help to prevent scum from forming.

Washing.—After the clothes are soaked they should be put into fresh wash water as hot as the hands can bear, with soap enough to produce a lasting suds, and then the soapy water should be forced through the fabric. Whenever the water becomes dirty, it should be replaced by fresh suds. If the clothes are washed by hand, it is better to turn them during the process and wash from both sides. Special attention should be given to hems and other parts that are much soiled. If the clothes are washed in a machine, the very soiled parts may need to be rubbed with soap as the garments are put into the machine.

The rubbing on a washboard should be gentle. The aim is to force water through the fabric; therefore soiled places should not be rubbed when they are more or less dry, but should be kept wet by frequent dipping, after each rub, if possible. Using the fleshy part of the palm in rubbing saves the laundress from scrubbing the skin off her knuckles. A small brush will be a great help in washing such heavy garments as corsets and overalls. If the water is very hard it must be softened for use in washing (see p. 25).

Boiling.—Boiling helps in cleaning soiled clothes and in sterilizing them, but they should be well washed first. With good outdoor drying facilities, boiling may be omitted. Only white cottons and linens may be boiled. Clothes that are to be boiled should be wrung from the wash water, shaken, rubbed with soap, especially in soiled places, and put into the boiler with cold water, or cold water to which soap solution or soap chips have been added. In all cases plenty of water should be used, and each boilerful should be started with fresh cold water. Naphtha soap should not be used in boiling clothes. The water should be gradually heated and the clothes pressed down and stirred with a stick, which may be used to lift them into the rinsing water. Most clothes need only about five minutes of actual boiling; too long boiling should be avoided because it tends to yellow the cloth.

Kerosene, turpentine, or shaved paraffin may be added if the clothes are very dirty or yellowed. From 1 tablespoon to a half cup for a boiler of water may be used. If kerosene is used the clothes should be thoroughly rinsed in order to remove the odor, which is particularly difficult to remove if hard water is used. This is equally the case with turpentine, the odor of which is even more objectionable to many persons, so much so that it is sometimes believed to cause illness; it is also sometimes considered injurious to the hands. An easier but more expensive method of whitening clothes is

to add the juice of one or two lemons to a boilerful. If clothes are not boiled, they may be scalded by covering with boiling water. It may be a good plan to boil every week the clothes that get very dirty, and the others only every three or four weeks.

Rinsing.—After boiling, or washing and boiling, clothes should be thoroughly rinsed in hot, clear water. This is more important than many housekeepers realize. If not thoroughly rinsed, the clothes may become grayish, or the soap left in them may act on the bluing to form rust spots, or the soap and the starch, if the latter is not pure, may yellow them. Moreover, traces of soap or washing soda may weaken the fiber of the material when heated in ironing. If the rinsing water must be softened, either borax or ammonia should be used; washing soda must not be used for this purpose because it is too strong a chemical to leave in the clothes.

Bleaching.—Clothes that are very yellow from long standing or from poor washing and drying may require bleaching. They may be soaked for several hours in water containing borax in the proportion of one-fourth cup to 1 gallon of water; if this is not effective the clothes should be wrung loosely and spread on the grass to dry in the sun, or in cold weather allowed to freeze. The clothes may need repeated wetting and several days out of doors. Javelle water also may be used to bleach cotton and linen clothes. It is prepared by dissolving 1 pound of washing soda in 1 quart of boiling water and adding $\frac{1}{2}$ pound of chloride of lime dissolved in 2 quarts of cold water. This solution should be filtered, and the clear liquid stored in a tightly stoppered bottle. Fabrics to be bleached may be put in Javelle water diluted with hot water ($\frac{1}{2}$ pint of Javelle water to 1 gallon of hot water), and the liquid brought only to the boiling point. Then the garments should be removed and washed thoroughly in plenty of soap and water, or in ammonia water. Only cottons and linens may be bleached with Javelle water, as it dissolves wool, turns silk yellow, and weakens the fibers of cottons and linens if they are boiled in it.

Bluing.—New clothes and those washed in soft water and dried in the sun should not need bluing. There are so many kinds of bluing and various fabrics take them up so differently that definite directions for the amount to use can not be given. Table linens and open mesh fabrics, such as lace, readily take up blue. The strength may be tested by dipping a small garment into the bluing water or by holding a little of it in the hollow of the hand. In the latter test the blue color should be faint, but decided. The bluing water should be kept well stirred and, to prevent streaking, clothes should be shaken out before they are dipped and should not be allowed to lie in the bluing water. Table linen, bed linen, and other articles

that are not to be starched are now ready for drying. For clothes that are to be starched the bluing may be added to the starch.

Clothes that have been overblued may be whitened by pouring boiling water over them, or if this is not effective, they may be boiled for a few moments. Continued overbluing of clothes may cause them to become gray.

Starching.—Clothes are starched to stiffen them, to give them the gloss of new material, and to make them keep clean longer. The following is a good general recipe for making cooked starch:

1 to 4 tablespoons starch, according to stiffness desired.	$\frac{1}{2}$ teaspoon borax.
1 cup ($\frac{1}{2}$ pint) cold water.	$\frac{1}{2}$ teaspoon paraffin or white fat.
	1 quart boiling water.

Make a paste of the starch and the cold water; add the borax, the paraffin or fat, and the boiling water. Boil the mixture, stirring it thoroughly, until it is clear, or for about 20 minutes. Remove any scum that forms and strain the starch while hot.

The borax may be omitted, but it helps whiten the clothes and it, as well as the paraffin or the fat, makes the starch smoother in ironing. Alum is sometimes added (from 1 teaspoon to 1 tablespoon to 1 quart of water) and is useful in making the starch penetrate the fiber. It apparently thins the paste but does not decrease its stiffening property.

It is impossible to give definite directions for amounts of cooked starch to be used, because all depends upon the fabric and the degree of stiffness desired. However, if the 4 tablespoons of starch have been used to the quart of water, a cup of this may be diluted with about 3 quarts of water for starching such articles as petticoats and gingham dresses. Garments should be starched wrong side out and left so until they are sprinkled. For white clothes the starch should be as hot as the hands can stand, because it penetrates better, and thin enough not to leave a glazed surface when ironed. If many clothes are to be starched it is wise to keep a part of the cooked starch hot and add it to the used starch, as the latter becomes too cool and thin. The garments that are to be stiffest should be starched first. After thorough squeezing and dipping, the surplus starch should be wrung out and the garments either rubbed or patted. Garments wrung very dry before starching will be stiffer than wetter ones. Stiff-bosomed shirts should not be starched too far down nor pleated bosoms too stiff, else they will hunch up in wear, look clumsy, and feel uncomfortable. If one is starched too far down, the lower part may be moistened enough to render it pliable.

A solution of borax water (about 1 teaspoon of borax to 1 quart of water) may be used for stiffening very thin fabrics, such as laces, voiles, organdies, and dimities. It gives body and crispness, similar to the original dressing.

Hanging and drying.—Drying clothes out of doors in sun and air sweetens and bleaches them. If the clothesline is not taken down it should be wiped with a damp cloth before clothes are hung on it. Clothespins should be clean and are best carried in a bag or an apron made for the purpose. Placing the basket of clothes on a hand cart or an old baby carriage will save much stooping. It is sometimes possible to pin the clothes to a line on a porch or other protected place and then draw it across the yard by pulleys; this is a convenience, particularly when the ground is wet. Garments should be shaken, turned wrong side out if this has not been done before, hung on the straight of the goods, and fastened by the bands when possible. Large pieces, such as sheets, should have from a fourth to a half of the article placed over the line and should be pinned in four or five places; hanging by corners or edges increases the danger of tearing. Clothes that have been properly hung are much more easily ironed than those that have been stretched out of shape by careless hanging. Starched clothes should be brought indoors as soon as dry, because with long hanging they lose their stiffness. A high wind may tear clothes and, like any rubbing, will take the stiffness out of starched goods. If clothes are folded carefully as they are taken from the line the work of ironing is reduced and some articles, such as bed linen and towels, may be used without ironing or by ironing the hems only. In extremely cold weather the housewife should protect herself from the danger of going out of doors from a hot, steamy room by pulling on a warm sweater or a heavy wrap and loose, heavy gloves.

Sprinkling.—Clothes should be sprinkled evenly and thoroughly but should not be wet too much. Linen may be dampened more than cotton, but starched clothes will be sticky if too damp. After being sprinkled the clothes should be pulled into shape, turned right side out if necessary, and rolled tightly. Care in rolling will aid greatly in making them more easily ironed. The rolls should be placed close together in a basket, covered with a clean cloth to prevent the outside layers from drying, and left at least half an hour, but better, overnight, to allow the moisture to spread evenly. If clothes are left damp too long during warm weather there is danger of mildewing.

Ironing.—Clean, hot irons are essential to successful ironing. Rubbing the irons occasionally with wax or paraffin will help to keep them in good condition. An iron is hot enough to use when it “spats” if touched with a moistened finger. A worker who moves her iron rapidly can use a hotter iron with less danger of scorching than can a person who works more slowly. Slightly scorched places may be washed out or bleached out by wetting them and drying them in the sun. Too cool an iron may leave a rust stain, which may be washed out, but the fabric should be partly dried again before re-ironing. With starched clothes the iron must be hot

enough to glaze the starch; otherwise the starch will stick and discolor the fabric.

All materials should be ironed with the thread of the goods and ironed dry. If materials are not ironed dry they will pucker later and look as though they had been rough-dried. Ironing as large a space as possible before shifting the garment saves time. In general, clothes should be ironed on the right side. Embroidery, however, should be ironed on the wrong side on a thick, soft pad, so that the design will stand out.

The general rule is to iron first those parts of the garment that will hang off the board while the rest is being ironed. For example, with a man's shirt or a shirtwaist, iron the cuffs and sleeves first, then the collar, and then, beginning with one side of the back or the front (depending on where the garment fastens), continue around to the other side. Every good laundress, after ironing a garment, looks it over carefully and presses any part that has become rumpled in handling; but if ironed dry, it should rarely need much re-pressing. If a gloss appears on hems or tucks or on heavy linens, it may be removed by moistening a piece of cheesecloth with clear water, wringing it very dry, and wiping quickly over the glazed surface. Too high a gloss on shirt bosoms, collars, or cuffs may be removed in the same way.

The amount of ironing needed may be very much lessened by choosing clothing and household linens with this in mind. Knitted underwear and garments made of crêpe and seersucker may often be carefully pulled into shape instead of ironed. Shirts with plain soft bosoms and soft cuffs are easier to iron than those with stiff or pleated bosoms and stiff cuffs. Underwear, blouses, and wash dresses with simple flat trimmings are more easily ironed than elaborate ones. Small plate doilies are easier to launder than large tablecloths. Carefully stretched towels can often be used instead of ironed ones, and many housekeepers prefer the freshness of unironed sheets to the polish of ironed ones. Special care must be taken in hanging out articles to be used unironed so that they may dry in as good shape as possible.

Folding and airing.—Clothes should be folded with the thread of the goods and hung until thoroughly dry in a place free from odors. In many households the ironed and folded clothes are put to air on a clotheshorse, which is closed and set out of the way when not in use. If, as they are folded, articles that need mending are sorted out, time and labor will be saved.

SILKS AND WOOLS.

Silks and wools are animal fibers and when moist are extremely sensitive to intense heat and to all rubbing; moreover, they harden, yellow, and shrink from the effect of strong alkali. They should not be soaked and should be washed in lukewarm water (about

110° F.) with a neutral, white soap, dissolved in the water and not rubbed directly on the material. Silk is not so easily affected by strong alkali as is wool, but its gloss is destroyed. The garments should be "soused" up and down and squeezed, but not rubbed, pulled, nor twisted. Very soiled places, such as cuffs and collars, may be cleaned by rubbing in a good suds with the palm of the hand.

Silks and wools should be rinsed as many times as necessary in water of the same temperature as the wash water. There is no advantage in adding soap to the rinse water, as is sometimes suggested. White wools and silks may be blued, but the bluing water should be of the same temperature as all the other water used. Woolen and silk garments may be wrung through a loosely set wringer, or the water may be squeezed out, but the material must not be wrung by twisting. Silk may be wrapped in a towel or heavy cloth before wringing.

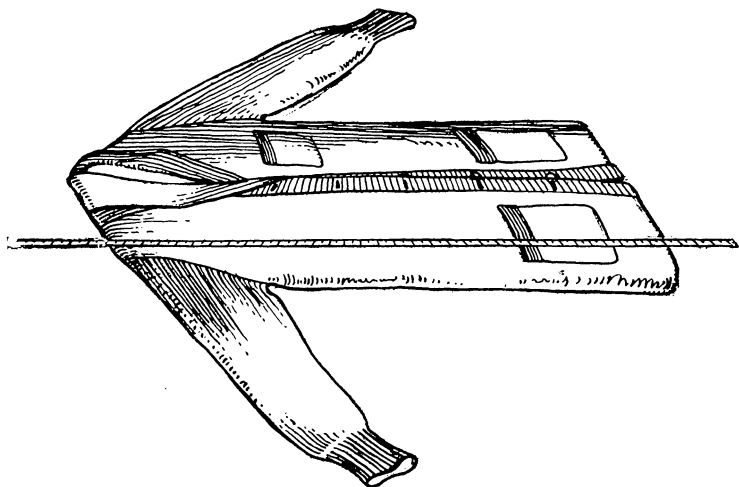


FIG. 8.—Washed sweater, shaped to original dimensions and spread out to dry.

Gum arabic is of special use in redressing silks. If in powdered form, one or two teaspoons of gum arabic should be allowed to stand in a quart of warm water until dissolved, and then this solution should be strained for use. If the gum is in lump form, boiling water should be used and the mixture kept hot until the gum dissolves; a double boiler may conveniently be used for the purpose. A quarter of a cup of this solution to a quart of water gives an average stiffness.

Wool will shrink if dried in too hot a place. Neither silks nor wools should be allowed to freeze, and they sunburn if put wet in the sun. Silks of fast dyes should be rolled while wet in heavy cloth until they are right for ironing, and not hung up to dry.

The irons used on silks and wools should be medium hot, as both these fabrics scorch easily and little can be done to remove the dis-

coloration. Silks and wools should be covered with a cloth if they are ironed on the right side, or they may be ironed directly on the wrong side. Wools iron more easily while still damp, for any creases are hard to press out if allowed to dry in. Silks should be rolled and ironed while still damp; parts that dry out should be ironed through a dampened cloth, for sprinkling is likely to spot silks. A well-ironed silk should be soft, not crisp and papery. Knitted and crocheted garments should be measured before they are washed, carefully pulled or patted into the original shape (see fig. 8), while still wet, and placed on a padded table to dry.

COLORED FABRICS.

Manufacturers endeavor to set the color of the dyes in their fabrics, but are not always able to permanently fix them. Special treatment before washing will sometimes help. Various chemicals may be used, but some of them are poisonous and for that reason undesirable. Housekeepers think common salt is effective for setting most dyes. No special rule can be given as to the amount of salt to use; about 1 cup of salt to 2 gallons of water is a good proportion to try, and more salt may be added until the color stops "bleeding." The color is more likely to be set if the material can be left in the salt water overnight rather than for a shorter time, and if it can be dried before washing. Sometimes salt is put in the final rinsing water in laundering colored goods. Setting color with salt is not likely to have a permanent effect, and the process may need to be repeated whenever the garment is laundered; also soap is less effective in water to which salt has been added.

Colored clothes should be washed in lukewarm water and neutral soap solution, and the fabric should be squeezed rather than rubbed. Unless the color is fast, no colored clothes should be soaked for any length of time, nor should they be boiled or exposed to too high a temperature in washing, rinsing, starching, or ironing. If the color seems very delicate, very cool water should be used, and soapbark, bran, or cooked starch water instead of soap. With a color likely to fade or run, rapid washing is safest; the material should be wrung as dry as possible and rolled in a cloth to absorb extra moisture; an even safer way is to shake the garment dry. For dark colors it is well to tint the starch; for example, tea may be used for blacks, browns, and greens, and bluing for blues, and the specially prepared "mourning" starch for blacks. Colored clothes should be dried in the shade and should not be allowed to freeze. They should be ironed on the wrong side.

INFECTED CLOTHES.

Clothing and linen used by a person suffering with any contagious disease and handkerchiefs used during a cold, need special

treatment and should not be kept or washed with other clothes. Separate bags or other containers that can be sterilized or destroyed should be provided. Infected clothing may spread the disease directly to the persons who handle it or indirectly through contact with other articles. Boiling is the simplest method of sterilizing infected clothing, but the heat is likely to injure some fibers and set stains and dirt; therefore other methods are sometimes preferable. The United States Public Health Service gives the following directions for handling infected clothing:

Clothes worn by a person suffering from or exposed to a contagious disease, or bed linen, may be disinfected previous to washing by immersion in one of the following solutions for one hour:

A 5 per cent dilution of the commercial solution of formaldehyde (formalin).

A 1 per cent solution of phenol (pure carbolic acid).

A $\frac{1}{2}$ per cent solution of liquor cresolis compositus.

Infected clothing may also be readily sterilized by immersing in boiling water for 10 minutes.

Woolen goods may be disinfected by immersing in water maintained at a temperature of 165° F. for 20 minutes. If the goods are then carefully washed and dried, no undue shrinkage of the garments should result and the infectious agents of disease, except those due to spore-forming bacteria, such as anthrax or gas gangrene, will have been destroyed.

Soaking in the solution recommended on page 15, prior to the disinfecting process, may prove advantageous in removing dirt and stains. These cleaning solutions may be readily sterilized after use by boiling them in the containers in which they were used.

The person who handles the infected garments should wear some form of apron to protect the clothing, and this apron should be disinfected immediately after the soiled clothes are handled. Also the hands and forearms should be thoroughly scrubbed with soap, water, and a nail brush for 10 minutes by the clock, and thoroughly rinsed in either the phenol solution or the cresolis solution mentioned above or in a 1:1000 solution of bichlorid of mercury.

These precautions are necessary in order to prevent the germs on the clothes being carried to the mouth of one handling the clothes or indirectly to the mouths of others.

SPECIAL CLEANING AND PRESSING.

To sponge and press cottons, linens, and silks.—To press out wrinkles from these fabrics they should be ironed through a piece of thin cotton material wrung out of clear water, or a part of the garment should be sponged with even strokes and then ironed dry. Heavy or colored goods should be sponged and ironed on the wrong side. Sponging with thin starch or gum-arabic water will make some fabrics seem almost new. Success lies in having the garment evenly dampened so that no water rings are formed nor an uneven stiffness produced.

To sponge and press woolens.—With woolens a thicker cloth must be used for dampening, to provide enough moisture. Plaits

or folds may be basted in place, but the stitches should be drawn as soon as the cloth is steamed; otherwise the thread will mark the material. Heavy irons are more satisfactory on materials such as are used in men's suits.

The appearance of woolen materials that have worn shiny may be improved by covering the right side of the material with a cloth wrung out of ammonia water (4 or 5 drops of ammonia to 1 quart of water), pressing with a medium-hot iron until the cloth is partly dry, and then brushing the wool vigorously with a stiff brush.

In silk and wool, wrinkles such as are caused by packing may be removed by hanging the garment either out of doors on a damp day, or in a steamy room.

To freshen velvets.—Most velvets may be freshened by steaming from the wrong side. One way is to draw the velvet through the steam from a teakettle. Care must be taken that the teakettle contains only a little water, or the water may spatter out and spot the velvet. As a special precaution several thicknesses of cheesecloth may be tied over the spout. A cone of heavy paper placed around the spout will direct the steam and make it possible to hold the velvet farther from the heat. Another way to steam velvet is to place several thicknesses of damp cloth over a hot iron and pass the back of the velvet quickly over the cloth. Velvet so creased that it can not be freshened by steaming may be "panned" by steaming and ironing it in one direction.

Dry cleaning.—Clothes may be dry cleaned with absorbents, such as starch, fuller's earth, and French chalk, or with such liquid solvents as gasoline, benzine, and carbon tetrachlorid. The last mentioned is not inflammable and does not form an explosive vapor like gasoline and benzine. It is sold under special trade names or may be purchased as such at many drug stores. All of these cleaners remove the grease that holds the dirt in the fabric; the powder absorbs it, the liquids cut it.

To clean with absorbents, cover the material with the powder, let stand for several hours, and remove the powder by shaking and brushing. The process may need to be repeated, and warming the powders sometimes makes them more effective. This method of cleaning is especially useful on laces, white wools and furs, and coat collars and cuffs.

Most liquids (except carbon tetrachlorid) used in dry cleaning are highly inflammable; therefore they must be used out of doors in the shade, away from fire, and friction must be avoided. The fire laws in some places allow so little gasoline to be used in the household that one can not employ it for general cleaning purposes. Mixtures of carbon tetrachlorid and gasoline are much less inflammable than gasoline alone and are said to be equally effective.

To clean a garment with gasoline, or other liquid solvent, cover it with the liquid, squeeze rather than rub it, and rinse it once or twice.

Thorough rinsing is just as necessary with a garment cleaned in this way as with one washed in water. For very soiled garments white soap may be used with gasoline, as with water. As pure a grade of gasoline as possible should be obtained, and even then it is wise to strain it through a cloth to remove sediment

GENERAL LAUNDRY SUPPLIES.

WATER.

A convenient water supply is a matter of course in most town and city homes, and to have one installed in every village and farm home is an ideal which ought not to be impossible of realization.

A simple, inexpensive way of connecting the pump in the yard with a faucet by the kitchen sink is described in other bulletins of this series.¹ When there is no special plumbing for the washtubs, much hard work is saved by running a piece of hose from the nearest faucet to the tubs. If the water must be carried by hand, more trips with smaller buckets are usually considered less tiring than fewer ones with heavier pails. Sometimes a child's cart can be used to advantage.

Water may be soft or temporarily or permanently hard. For laundry work the softer the water the more desirable it is, not only because it is a better solvent but also because it more readily forms a suds with soap. Soap may be used to soften hard water, but is precipitated in the form of an insoluble scum, which, if allowed to settle on the clothes, is very difficult to wash out. Temporarily hard water may be somewhat softened by exposure to the air, because then the soluble carbonates change to an insoluble form and settle. If this method is to be used, available containers—washtubs, boilers, and pails—are filled with water and allowed to stand overnight. However, this is usually impracticable and involves much lifting of water. Softening temporarily hard water by boiling is a better method but is also laborious. If steam heat is used in a house, an appliance may be installed for condensing the steam and so obtaining distilled water from either permanently or temporarily hard water.

The most practical measure, under ordinary circumstances, is to use chemicals to soften water, for neither boiling nor exposure has any effect on permanently hard water. Washing soda is the chemical perhaps most commonly used for this purpose, since it is inexpensive and effective. One pound of soda should be completely dissolved in a quart of water and two tablespoons of this solution used for each gallon of moderately hard water. In certain regions, for example, in irrigated sections where the water is alkaline, better results are obtained if the wash water containing this solution is boiled and the scum strained off before the clothes are put in. Clothes should never be put into water in which there is undissolved soda, for the latter may make holes in them.

¹ U. S. Dept. Agr., Farmers' Bul. 927 (1918), *Farm Home Conveniences*, pp. 23-29, and Farmers' Bul. 941 (1918), *Water Systems for Farm Homes*.

Instead of washing soda, lye may be used, but has no special advantage over soda and is so much stronger that it must be used with great care. Two teaspoons of lye, dissolved in water, are used for 1 gallon of moderately hard water. If the water is very hard, more soda or lye must be used, but if too much is added it may injure the clothes. Borax and ammonia are more expensive agents for softening water. Borax is only mildly alkaline, but in addition to softening the water it tends to whiten the clothes. It may be used with colored clothes and woollens, when neither washing soda nor lye should be used, and in rinsing water. Ammonia is volatile and evaporates readily, and is likely to be less effective in long soaking or boiling processes, but, like borax, may be used in rinsing water. It is usually cheaper to buy strong ammonia at the drug store and dilute it with water than to buy household ammonia (see p. 15).

Besides having the water soft, it must be clean. If the water is muddy, straining through heavy material will help to clear it. For this a salt bag may be tied over the spout of the pump or the mouth of the faucet.

If the water contains iron, as is often the case, it is a great handicap in laundry work. Sometimes iron is present in such form that it will "settle out" on standing. Sometimes only the water that is first drawn is rusty, but later will become clear. If the iron is really in permanent solution, it is sometimes possible to use such water by washing quickly and not allowing the clothes to stay in it. A safer method is to precipitate the iron by adding washing soda and letting the water stand for several days; then the clear water should be carefully poured off, leaving the sediment in the bottom of the vessel.

SOAPS.

Laundry soap may be either yellow or white, the yellow color generally being due to the presence of rosin. A little of this helps in producing suds, but an excess, such as is likely to be found in very dark brown soaps, is objectionable because it serves no useful purpose in laundering and because it forms a sticky scum which may adhere to the clothes. Much rosin can be easily detected, for it gives the soap a pungent odor and a sticky quality.

Soaps may be classed as strong, medium, and mild. Strong soaps contain an excess of soda or lye, and while they will not harm white cottons and linens, they can not be used safely with silk, wool, or colored fabrics. Any one can tell whether soap contains an excess of soda or lye by the following simple tests: Such soap causes the hands to shrivel into the condition so long known as washerwoman's hands, and has a biting taste when touched with the end of the tongue. Medium soaps usually contain some free soda or lye.

A mild soap contains no free soda nor free lye and is the best for general purposes if only one kind is used in the laundry. If a stronger effect is desired, washing soda may be added to the water instead of

using a stronger soap, which contains it in unknown amount. If soda is used, clothes must not be boiled with it, for heat intensifies its action. Even a dilute solution may shrink and discolor wool, may fade colored fabrics, and will yellow white silk.

If the supply of hot water is limited, naphtha soap may be used to good advantage with cold or lukewarm water. Naphtha helps loosen the dirt in the clothes but is too volatile to be effective with hot water.

It is not economy to use a poorly-made soap which may contain free grease or an excess of lye, or both. This is sometimes the case with homemade soaps, but need not be so if good directions (for example, those that come with the commercial lye in tin cans) are carefully followed. Making soap at home may not be good economy where the fat can be sold for use in a soap factory, but it is a thrifty practice where the fat would otherwise be thrown away.

Boiler or chip soap is more economical than cake soap for use in the washing machine, but does not take the place of cake soap when clothes are washed on a board. Almost all soap manufacturers make a chip soap which may be bought by the pound at the grocer's or obtained by parcel post or by freight from the factory. Soap chips can be made at home by shaving up a cake of soap or putting it through a food chopper. One pound of chips dissolved in five gallons of water makes a good strong soap jelly, which should be added to the water in the boiler or washing machine in sufficient amounts to make good suds. A more economical solution to be used for white cottons and linens may be made from one-half pound of soap chips and one-fourth pound of soda to five gallons of water; this must not be used for wool, silk, and colored fabrics. Soap solution will keep indefinitely if covered to prevent evaporation.

Dye soaps.—These are supposed to clean and dye at the same time. It is safer, however, before using the dye soap, to wash the garment clean with white soap and water. The best results come from dipping the garment in a generous quantity of water to which the tint has been added. The color is always fainter after drying than while the garment is wet. The tinting is usually not permanent and the process should be repeated with each laundering.

WASHING POWDERS.

Most washing powders are a mixture of soap and washing soda, although some contain even stronger chemicals. This will explain why clothes fade, why silks turn yellow, and why woollens "harden" when too much washing powder is used. Washing powder and washing soda are sometimes used for washing babies' diapers because they make it easier to remove stains, but they must be cautiously used and *very thoroughly* rinsed out with hot water, or they are very likely to irritate the skin. A little commercial formaldehyde such as is sold by druggists (about a teaspoon to a quart of water) may safely be used in the water for soaking as a deodorant before

washing such offensively soiled articles. As the formaldehyde irritates the skin, the clothes should be lifted with a stick and thoroughly rinsed in clear water.

SOAP SUBSTITUTES.

When the action of soap is likely to injure a delicate color, soapbark, starch water, or bran water may be used instead.

Soapbark, although not a soap, when heated in water will form suds. To prepare it for use, boil for 10 minutes a cup of the bark with one quart of water, and cool and strain the liquid. The "soapy" water may be used full strength for sponging or diluted for washing; half of this amount is enough for one-half tubful of water. Since the liquid is brownish, it should be used only on dark-colored goods.

Starch water is especially good for cleaning delicate cotton fabrics. This is usually made by adding thin starch paste to the wash water. Water in which rice has been boiled, if it is not discolored, may be used instead. If it is not desirable to have the material starched slightly, it must be rinsed in salt water.

Bran water, made in the same way as soapbark solution, is useful with colors that are likely to fade. It does not give suds, but cleans like starch water.

BLUINGS.

Bluings differ in composition as well as in form. The commonest bluings are Prussian blue, aniline, and ultramarine. Indigo is now rarely used. Bluings in solution color fabrics more evenly than bluing that is merely in suspension. "Bottle blues" are in many cases made of Prussian blue, an inexpensive soluble salt of iron. Unfortunately, however, they are easily decomposed by soap, and if the clothes are not thoroughly rinsed, iron-rust stains may appear on them when ironed. It is easy to discover whether or not a bluing contains iron, by adding strong soapsuds to some of it; if it changes from blue to yellow, iron is present.

Aniline blues are also soluble and may be bought in both liquid and powdered form. Although the powder seems dear when it is bought by the ounce, so little is used at one time that it is really not expensive and is, perhaps, to be preferred to any other kind of bluing. A quarter of an ounce may be dissolved in a quart of water, bottled, and kept indefinitely; a half teaspoon of this is enough for a tub of water.

Ultramarine blue is not very soluble and is sold in balls or cubes. Because it is difficult to dissolve, more of it must be used to be effective and the water must be kept well stirred to prevent the bluing from spotting or streaking the clothes. For use, the balls or cubes, wrapped in heavy muslin or flannel so that only the very finest particles of the ultramarine may pass through, should be soaked in a bowl of water and this liquid added to water for bluing.

STARCHES.

A good starch is one that penetrates the fiber and stiffens a garment without making it look glazed or as if it had been pasted with starch. Cornstarch, wheat starch, or water from cooking rice, tapioca, or other starchy materials may be used, but for laundry work in this country cornstarch has been the most common. Commercial houses that supply the laundry trade sell blended starches, which probably give the best results of all.

Most housewives will find one kind of starch sufficient unless special effects are desired. Cornstarch is particularly good for collars, cuffs, and shirt bosoms; wheat starch for body clothes, and rice starch for lingerie and children's clothes. Blended starch made with two-thirds corn and one-third wheat starch is good for collars, cuffs, and shirt bosoms; and that made with one-third corn and two-thirds wheat starch for clothes to be less stiffly starched.

Prepared starches are sold for use in cold starching. The directions on the package should be followed. These starches are commonly used without cooking, and the garment is ironed while it is still damp without previous drying and sprinkling. The texture and color produced by this method are sometimes not so good as those obtained by the use of cooked starch.

SUPPLIES FOR A HOME LAUNDRY, INCLUDING MATERIALS FOR REMOVING STAINS.

Alcohol, denatured.	Javelle water.
Alum.	Paraffin.
Ammonia.	Potassium permanganate.
Beeswax.	Oxalic acid.
Bluing.	Salt.
Borax.	Soap.
Chloride of lime.	Soap bark.
French chalk or fuller's earth.	Starch.
Gum arabic.	Tea.
Hydrochloric acid.	Washing soda.

COMMUNITY LAUNDRIES.

For 50 years or more various foreign cities have been building washhouses along the rivers. Each house is equipped with standing troughs and usually a stove. For a few pennies the women can take their clothes there, wash them in the running stream, and dry them in yards on the banks. American cities have not imitated this type of washhouse, but in a few of the large cities special indoor washhouses have been built, many times in conjunction with municipal bathhouses. These washhouses are divided into compartments where a housewife may take her clothes and have the use of two washtubs and a wringer with hot and cold water. She takes her clothes home in the "wet wash" stage, ready to finish, or may dry them in the drying room.

In one or two cities municipal laundries have been established, to which women may carry their clothes, leave them, and have them washed with power equipment. Thirty pounds of clothes are allowed

to one family for a given price, and, without marking or sorting, the bundle is put into a compartment of a washing machine large



FIG. 9.—Primitive laundry methods in Guam.



FIG. 10.—A Guam washing machine.

enough to hold eight such bundles at a time. Such a laundry is expected to be self-supporting but to make no money.

For some time a few cooperative laundries have been working successfully in certain rural regions, and county home demonstration agents report an increasing interest in such enterprises. One of the earliest was the outgrowth of a cooperative dairy (see figs. 11 and

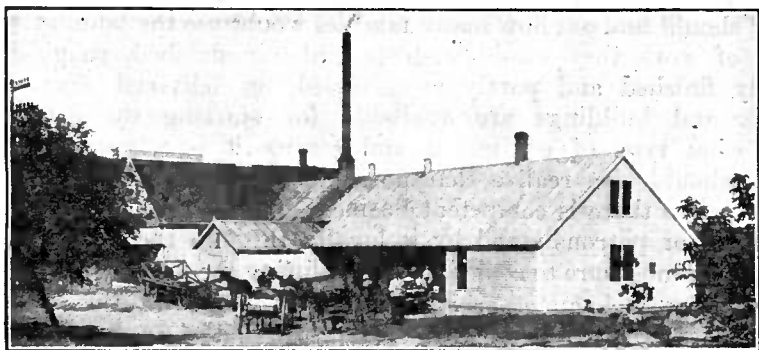


FIG. 11.—A cooperative community laundry in Minnesota.

12). The dairy building was enlarged and the same power plant now operates, with little extra expense, both dairy and laundry. The farmers who bring in milk receive tickets in return, which may be either turned into cash or used to pay for laundry work. In another

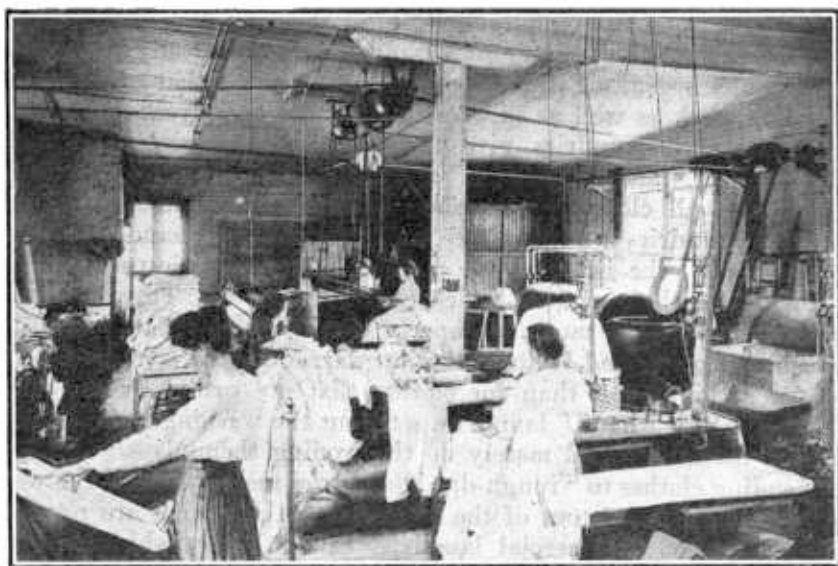


FIG. 12.—Interior of the above cooperative community laundry.

case, a group of persons interested in a cooperative laundry bought the necessary equipment and arranged with a local creamery to furnish space and power; in another, certain members of a community united to build, equip, and manage a special laundry, which is successfully run on a cooperative basis. It is not necessary, however, to begin

with so complete an outfit and organization. A successful community laundry can be started in a barn or shed by a few families, all sharing in the cost of simple machinery and either taking turns in using it or hiring the help necessary to run it. Before such an undertaking is started in any community a committee of those interested should find out how many families would use the laundry, what type of work they would wish (completely finished, rough-dried, partly finished and partly rough-dried, or delivered wet), what funds and buildings are available for starting the enterprise, and what type of equipment and service it is wisest to install. They should also realize that no such cooperative enterprise succeeds unless there is competent business management and unless the members or patrons stand by it loyally through the trying period which is almost sure to come some time during the first few years. In considering such an enterprise it is well to consult the extension director at the State college of agriculture or the county agent.

COMMERCIAL LAUNDRIES.

Clothes handled in large quantities and by large machines are necessarily subjected to greater wear. However, under some circumstances, this should not outweigh the time and strength necessary to do the work at home. Most laundries will allow the housewife to see the conditions under which the work is done. She should cooperate with the laundry by having her bundles ready for regular collections instead of demanding the rush service that often results in poor work as well as in overtime for the employees.

Commercial laundries give three types of service—"finished," "rough dry," and "wet wash" work.

Usually all clothing is washed by machinery; as a rule, only special laundries accept pieces to be washed by hand. In some laundries all the ironing also is done by machines especially constructed for the garments which they are to iron. This, of course, makes the work much cheaper. Usually the "flat work" is machine-ironed, and if the quantity warrants, this is rated by the dozen at lower cost than for clothes that are priced by the piece. Most so-called "hand" laundries send out the washing to be done by power machinery and merely do the ironing themselves.

Sending clothes to "rough-dry" laundries means that all the work of washing is taken out of the house, since the clothes are returned after drying. Commercial laundries can do the washing at little cost, but the clothes are likely to be wrinkled and in poor shape for ironing.

"Wet-wash" work is still cheaper because the clothes are not dried but have as much water as possible extracted by wringing in a centrifugal machine. When returned they must be dried before ironing.